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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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By order of the Luftwaffenministerium (Ministry of Air Forces), the Kreiselgeraete GmbH developed stabilizers to be installed in the V-2 for Peenemuende. The basic system of these stabilizers had been worked out by the Henschel Aircraft Plant and the Rheinmetall-Borsig Plant, which manufactured the guided missile. Peenemuende was involved in research on formulas and requirements for guide beam control which was fundamental for the development of the computers. The three guide systems developed went under the name of Schmetterling, Rheintochter, and Wasserfall. The Rheintochter and Schmetterling differed only in that the latter had a much lower initial velocity, which required the installation of a parallax computer designed to balance the angle of convergence between the position of the rocket and its launching site. The Schmetterling system also required a lead computer into which the values of the angular velocity were fed; a method which, although the most inaccurate of all systems, was the simplest when compared with the linear computing method. Such equipment was not required for the Rheintochter, which, because of its much higher initial speed, could be guided into the line of sight at a far more advanced point. The Schmetterling-type rocket entered the guide beam 450 meters from the launching site and the Rheintochter, at a distance of 1,300 meters. The parallax difference occurring in the Rheintochter system was rather small because its guide beam had a comparatively large angle of divergence, i.e., seven degrees. At the time when this system was being developed, the rocket was to be used against approaching targets. By the end of the war, the Schmetterling was ready for mass production.
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- [] Colonel Tretyakov (fnu) [] 25X1
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 [] Tretyakov worked for the Soviet Ministry of Shipbuilding. 25X1
3. Scientific Research Institute 49 (NII 49) in Leningrad was subordinate to the Soviet Ministry of Shipbuilding. [] Tretyakov wanted to secure the German specialists for his ministry by assigning them to an institute controlled by this ministry. Then the German group was completely isolated and worked in a field entirely different from the activities of the institute. 25X1
4. In Peenemuende, the Soviets had captured blueprints, a model of the Schmetterling, and the first experimental model of the Wasserfall-type rocket. The German experts at NII 49 were ordered to redesign the Schmetterling and to conduct laboratory tests with it. Some minor defects were found and eliminated. After laboratory experiments were completed, the Wasserfall was tested at a target range. [] 25X1
 [] Subsequently the Germans completed the Rheintochter-type rocket, which, as mentioned before, operated without lead computer and had only a roughly adjusted parallax. 25X1
5. The Wasserfall AA rocket climbed vertically at an initial speed of zero and a maximum acceleration of six Gs before it was directed in a curve to the guide beam by means of a computer. This rocket had four fins and four rudders which were affected simultaneously, so the projectile could be given any direction desired. The Schmetterling and Rheintochter-type rockets had only two fins and a single-unit gyroscopic antidrift stabilizer. [] NII 49 [] designed a stabilizer for the Wasserfall missile with three gyroscopes, namely, a type A stabilizer designed to prevent the missile from turning about its vertical axis, a type E stabilizer to prevent inclinations about the lateral axis, and a type D stabilizer, a gyrostabilizer. The first Wasserfall testing model was completed at Leningrad; after the model had been successfully tested at an unknown target range, basic records were prepared for series production of the rocket. 25X1
6. Another project assigned to the German experts at NII 49 involved experiments with a captured gyroscopic stabilizer for the V-2 which required a high degree of accuracy and reliability against all deviations from the flight path. Good results were obtained with an air-bedded gyroscope designed at NII 49. The inner casing containing the gyroscope was fitted with a compressed-air unit forcing air into the space between the inner and the outer casings of the unit. This system reduced the friction on the axis of precession to a minimum. Subsequently, it was planned to increase the velocity of the projectile because an initial velocity of six Gs was considered to be too slow for long ranges. Tests conducted with the stabilizer for this purpose at an initial velocity of 25 Gs showed that the unit could not stand this speed because the suspension of the stabilizer caused defects on the stabilizer's horizon. On Soviet order, the German experts, therefore, developed another air-bedded stabilizer unit which was installed in the head of the projectile. These development activities ended in July 1950.
7. Charin (fnu), [] was chief of NII 49, which was located on Gospitalnaya ulitsa in Leningrad. NII 49 had been an institute for high frequency techniques. The German experts worked in offices separated from the remainder of the institute. Special passes were required for these offices. Soviet engineer Klaritskiy (fnu) [] supervised the activities of the German group, submitted the work orders, and fixed the target dates for the work of the German engineers. He was the only Soviet contact for the German experts; he spoke good German. 25X1
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8. After the development projects for the Schmetterling, Rheintochter, and Wasserfall AA rockets and for the V-2 had been completed, the German experts were given minor designing projects, including a sinus indicator, a winding machine, and small amplifiers. In August 1950, the German group had to vacate their offices at the institute and moved to an annex of the building.

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